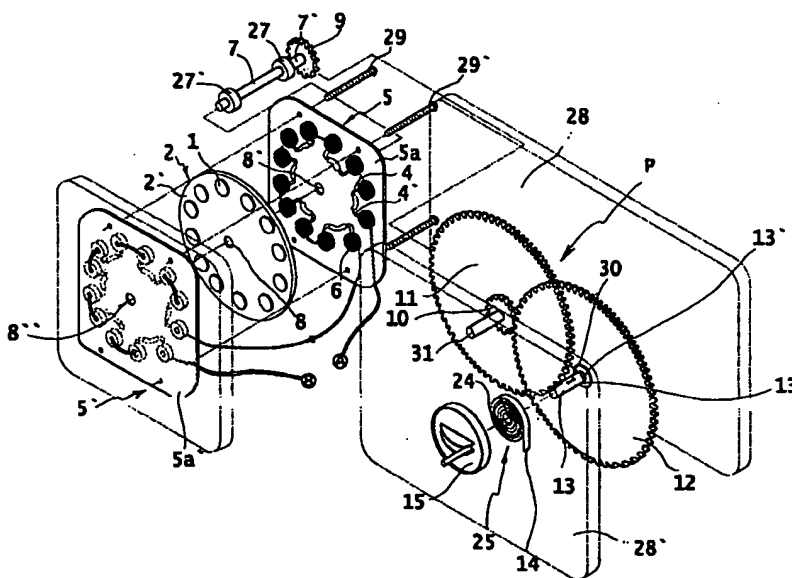




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT) -

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<p>(21) International Application Number: PCT/KR99/00703</p> <p>(22) International Filing Date: 22 November 1999 (22.11.99)</p> <p>(30) Priority Data:</p> <table border="0"> <tr> <td>1998/50149</td> <td>23 November 1998 (23.11.98)</td> <td>KR</td> </tr> <tr> <td>1999/51727</td> <td>20 November 1999 (20.11.99)</td> <td>KR</td> </tr> </table> <p>(71)(72) Applicant and Inventor: LEE, Jung, Hun [KR/KR]; San 99-1, Nam Hyeun-dong, Gwanak-gu, Seoul 151-080 (KR).</p>		1998/50149	23 November 1998 (23.11.98)	KR	1999/51727	20 November 1999 (20.11.99)	KR	<p>(81) Designated States: CA, CN, DE, JP, SE, US.</p> <p><b>Published</b></p> <p><i>With international search report.</i></p> <p><i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>
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(54) Title: SMALL PORTABLE FLAT GENERATOR



## (57) Abstract

The present invention is to provide a small portable flat generator characterized in that a multitude of circular magnet plates (1) having the south and the north poles (N.S.) in up and down direction are mounted to pass in perpendicularly through plastic circular plate (2'), to have opposite poles among near magnets and to form a circle, to give a magnet disposing circular plate (2); a multitude of bonding coils (6) connected to each other by the inner and the outer terminals are disposed by adhesion on a pair of plastic flat plates (5a, 5b) to form circles, to give a pair of bonding coil disposing plates (5, 5'); said pair of bonding coil disposing plates (5, 5') are disposed on both sides of said magnet disposing circular plate (2) to give a generating part G.

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# SMALL PORTABLE FLAT GENERATOR

## BACKGROUND OF THE INVENTION

### FIELD OF THE INVENTION

The present invention relates to a small portable flat generator, more particularly to a small portable flat generator being generated by rote using magnet and coil

### DESCRIPTION OF THE PRIOR ART

A small portable flat generator being generated by means of mechanism using magnet and coil is not known in domestic and foreign literatures or gazetts.

Generally industrial (power) generator comprises a cylinder having magnets on its inner surface and a rotator wound coil (coil-wound-rotator) roating in said cylinder by electric power.

However without using electric power or the other power a small and flat portable generator being generated only by entire mechanism using magnet and coil has never disclosed until now.

Accordingly, until now electronic products such as cellular phones, notebook computers, or the other small electronic products being operated by charging

electricity can be charged only at position installed a charger. Thus if during use those out-doors the power gives out it was impossible to charge it.

### **SUMMARY OF THE INVENTION**

The present invention is to provide a small portable flat generator capable of charging electronic products alway without regard to time and place in order to dissolve inconvenience in relation to charge of electronic products as stated above, furthermore to provide a small portable flat generator that a pair of bonding coil disposing plates are established symmetically on both sides of a magnet disposing circular plate and said magnet disposing circular plate is rotated only by a rope or a mechanical spring to generate electricity on said bonding coil disposing plates.

Now referring to the accompanying drawings the present invention is described in detail as below.

### **DESERPTION OF THE DRAWINGS**

Figure 1(a)(b) are front and rear plane views of a magnet disposing circular plate of a generator in accordance with the present invention.

Figure 2 is a plane view of a pair of bonding coil disposing plates connected by terminals in accordance with the present invention.

Figure 3 is a disassembled perspective view of a generator in accordance with the present invention.

Figure 4 is a assembled perspective view of a generator in accordance with the present invention.

Figure 5 is a flow diagram of a rectifier using in the present invention.

### DETAILED DESCRIPTION OF THE INVENTION

A multitude of circular magnet plates 1 having the south and the north poles(N.S) in up and down directions are mounted to pass in perpendicularly through plastic circular plate 2', to have opposit poles among near magnets and to form a circle by the disposing them in appropriate distance, to give a magnet disposing circular plate 2 ; a multitude of bonding coils 6 connected each other by the inner and the outer terminals are disposed by adhesion on a pair of plastic flat plates 5a, 5b to form circles by disposing them in appropriate distance, symmetrically with the magnet plates 1 of said magnet disposing circular plate 2, to give a pair of bonding coil disposing plates 5, 5' ; said a pair of bonding coil disposing plates 5, 5' are disposed on both sides of said magnet disposing circular plate 2 so that said magnet plates 1 and said bonding coils 6 are put opposite each other, then said a pair of bonding coil disposing plates 5, 5' and said magnet disposing circular plate 2 are

mounted fixedly on a rear supporting plate 28 by means of bolts 29, 29', to give a generating part G, wherein said magnet disposing circular plate 2 is mounted to rotate in shaft holes 8', 8'' of said bonding coil disposing plates 5, 5' by a shaft rod 7 fixed in its shaft hole 8 and mounted bearings for rotation 27, 27' and said generating part G can be mounted over two parts by elongating said shaft rod 7 of the magnet disposing circular plate 2 ; on one end 7' of said shaft 7 fixed on the magnet disposing circular plate 2 the first small gear 9 is fixed, the first large gear 11 mounted to rotate by a shaft rod 31 on front and rear supporting plates 28, 28' and having the second small gear 10 in center is engaged with said the first small gear 9, said second small gear 10 is engaged with the second large gear 12, in central fixing hole 30 of a shaft 13 that one end 13' is fixed on said supporting plate 28, the other end 13'' is fixed on a handle 15 the inner end 24 of a mechanical spring 25 made of spiral spring is fixed and the outer end 14 of said mechanical spring 25 is fixed at appropriate position of the outer surface of said second large gear 12', to give on operating part P ; terminals for connecting with the exterior A', B' connected with the coil of said bonding coil disposing plates 5, 5' are connected with terminals A, B of a rectifier R for D.C conversion comprised a conventional rectifying diode S, electrolysis condenser 16, mylar condenser 17, regulator 18, the second electrolysis condenser 19, the second

mylar condenser 20, and luminous diode 21 or terminals 22, 23 for condensation.

The small portable flat generator in accordance with the present invention as stated above is operated as follows;

If the mechanical spring 25 is first wound by the handle 15, then a hand take off from the handle, by reverse force of the mechanical spring said second large gear 12 is rotated to operate said magnet disposing circular plate 2 by operation of gears(12)(10)(11)(9) engaged with it, in turn., so that by repeated rotation of said multitude of magnet plates 1 having N.S poles on said magnet disposing circular plate 2 opposite to said multitude of bonding coils 6 on a pair of bonding coil disposing plates 5, 5' the opposite S.N poles are magnetized repeatedly to generate alternating current (A.C), wherein if the numbers of generating part G comprised the magnet disposing circular plate 2 and the bonding coil disposing plate 5, 5' are increased quantity of electricity generated thereby can be increased.

The resulting alternating current is passed through A', B', A and B lines wherein the A.C is the first rectified by dividing into + and - currents as direct currents(D.C) by the rectifying diode S, the a part of still surviving thick saw tooth wave current is arranged by the electrolysis condenser 16 and is adjusted into micro voltage by passing the mylar condenser 17, waves of said

D.C current are arranged by passing the second electrolysis condenser 19 and the second myler condenser 20 so that the D.C current is arranged to flow horizontally.

According when the two arranged lines of currents as described above are connected with said luminous diode 21 the light of a flash is switched on, when said + and - terminals 22, 23 for charge are connected, by appropriate jack, with terminals of an electronic product the electronic product can be charged and when said + and - teminals are contacted with a cigarette it can be lit up,



## CLAIMS

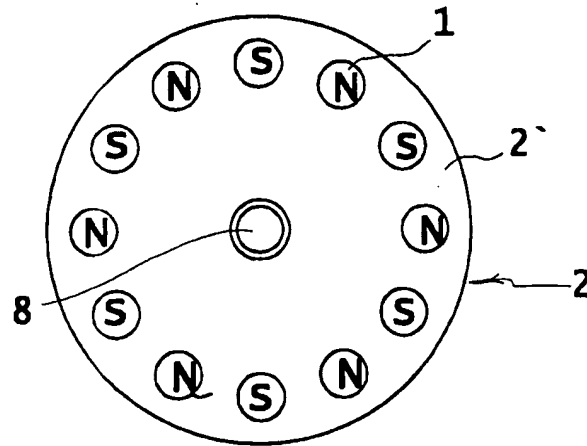
1. A small portable flat generator characterized in that a multitude of circular magnet plates 1 having the south and the north poles(N.S) in up and down direction are mounted to pass in perpendicularly through plastic circular plate 2', to have opposit poles among near magnets and to form a circle by disposing in appropriate distance, to give a magnet disposing circular plate 2 ; a multitude of bonding coils 6 connected each other by the inner and the outer terminals are disposed by adhesion on a pair of plastic flat plates 5a, 5b to form circles by disposing them in appropriate distance, symmetrically with the magnet plates 1 of said magnet disposing circular plate 2, to give a pair of bonding coil disposing plates 5, 5' ; said a pair of bonding coil disposing plates 5, 5' are disposed on both sides of said magnet disposing circular plate 2 so that said magnet plates 1 and said bonding coils 6 are put opposite each other, then said a pair of bonding coil disposing plates 5, 5' and said magnet disposing plate 2 are mounted fixedly on a rear supporting plate 28 by means of bolts 29, 29', to give a generating part G, wherein said magnet disposing circular plate 2 is mounted to rotate in shaft holes 8', 8" of said bonding coil disposing plates 5, 5' by a shaft rod 7 fixed in its shaft hole 8 and mounted bearings for rotation 27, 27', and said generating part G can be mounted over two parts by elongating said shaft rod 7 of the magnet disposing circular

plate 2 ; on one end 7' of said shaft 7 fixed on the magnet disposing circular plate 2 the first small gear 9 is fixed, the first large gear 11 mounted to rotate by a shaft rod 31 on front and rear supporting plates 28, 28' and having the second small gear 10 in center is engaged with said the first small gear 9, said second small gear 10 is engaged with the second large gear 12, in central fixing hole 30 of a shaft 13 that one end 13' is fixed on said supporting plate 28, the other end 13'' is fixed on a handle 15 the inner end 24 of a mechanical spring 25 made of spiral spring is fixed and the other end 14 of said mechanical spring 25 is fixed at appropriate position of the outer surface of said second large gear 12, to give an operating part P ; terminals for connecting with the exterior A', B' connected with the coil of said bonding coil disposing plates 5, 5' are connected with terminals A, B of a rectifier R for D.C conversion comprised a conventional rectifying diode S, electrolysis condenser 16, mylar condenser 17, regulator 18, the second electrolysis condenser 19, the second mylar condenser 20, and luminous diode 21 or terminals 22, 23 for condensation.

**ABSTRACT**

1. The present invention is to provide a small portable flat generator characterized in that a multitude of circular magnet plates 1 having the south and the north poles(N.S) in up and down direction are mounted to pass in perpendicularly through plastic circular plate 2', to have opposit poles among near magnets and to form a circle, to give a magnet disposing circular plate 2 ; a multitude of bonding coils 6 connected each other by the inner and the outer terminals are disposed by adhesion on a pair of plastic flat plates 5a, 5b to form circles, to give a pair of bonding coil disposing plates 5. 5' ; said a pair of bonding coil disposing plates 5, 5' are disposed on both sides of said magnet disposing circular plate 2 to give a generating part G.

Fig 1  
(a)



(b)

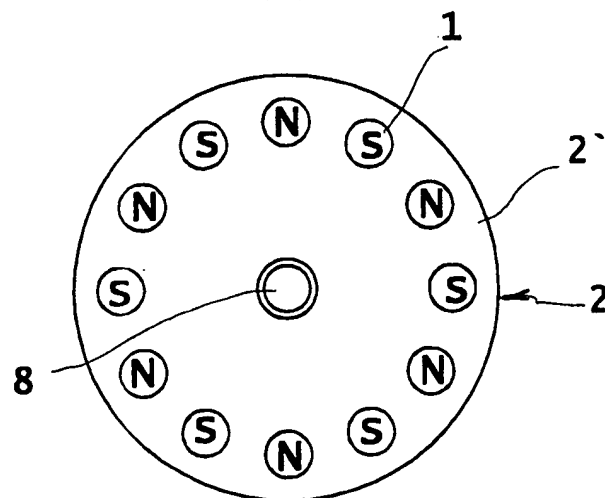
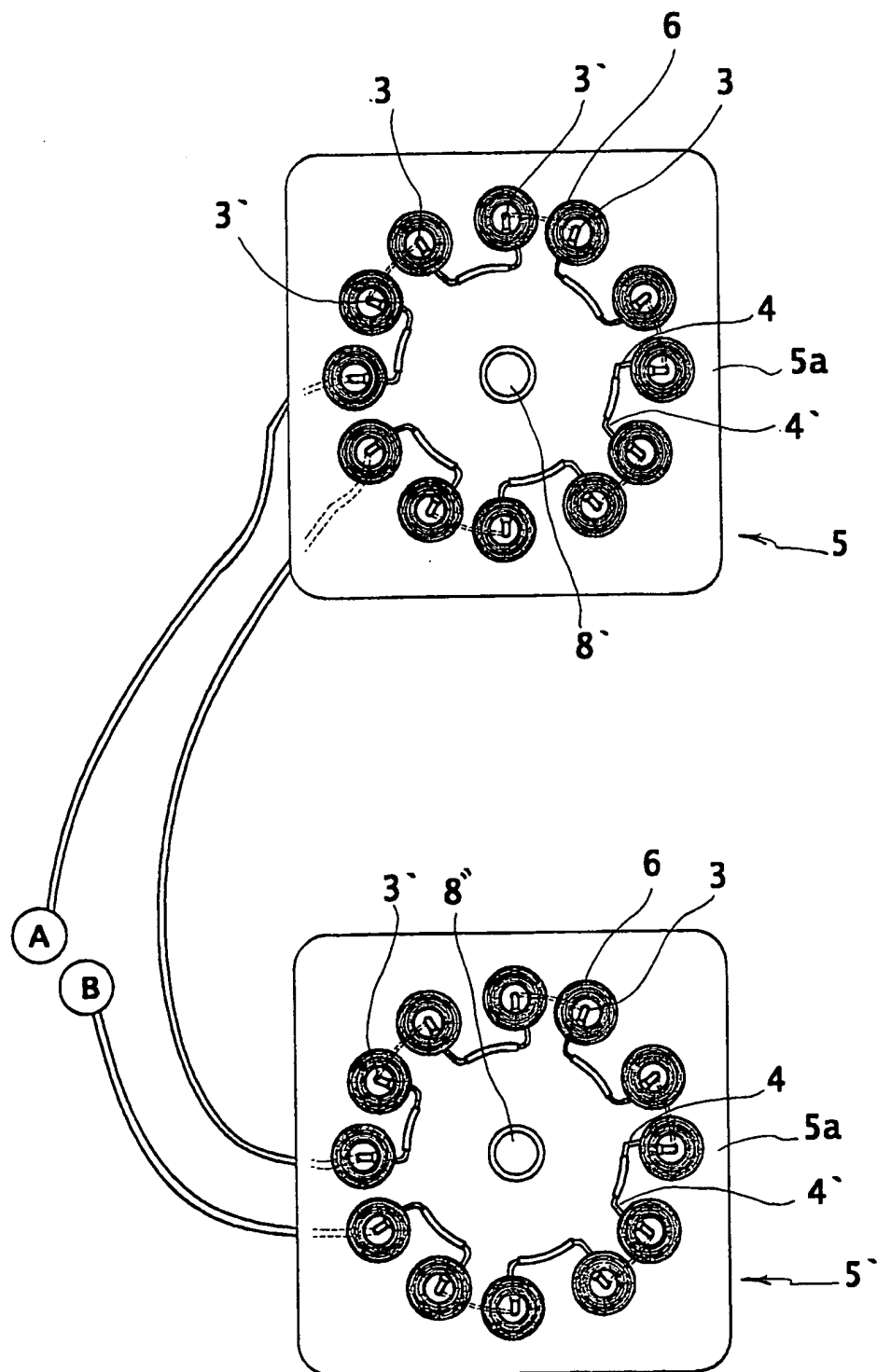


Fig 2



**Fig 3**

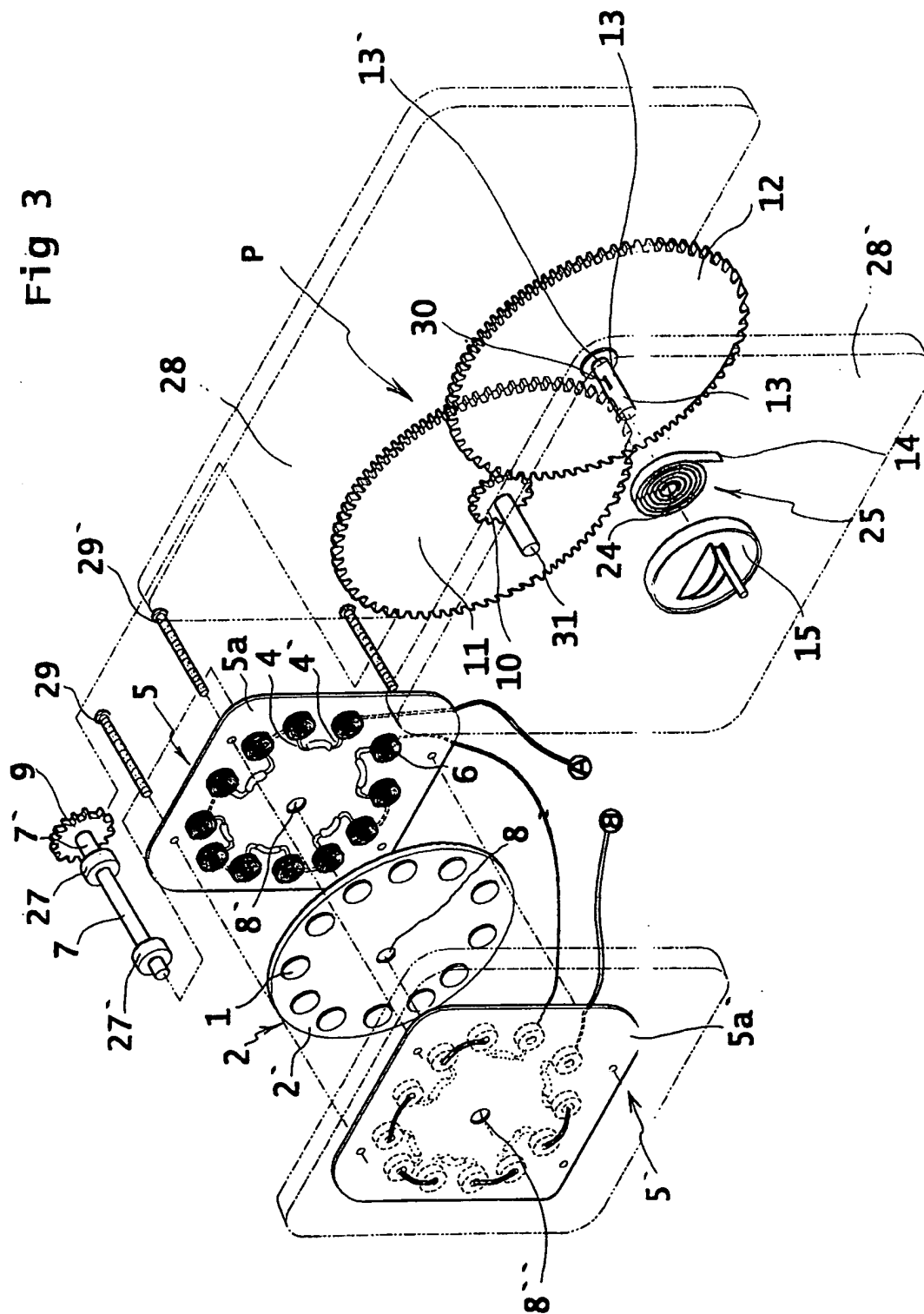


Fig 4

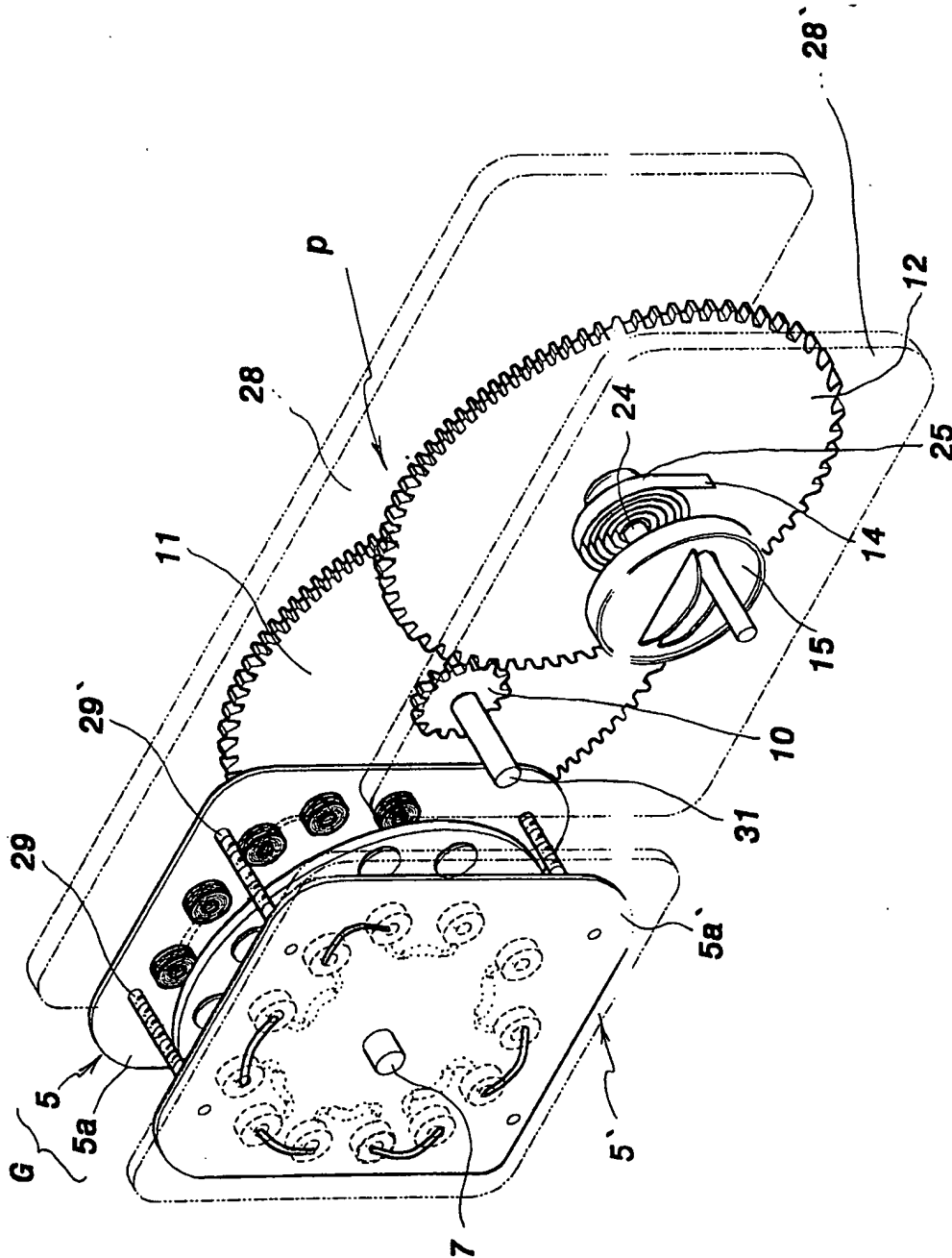
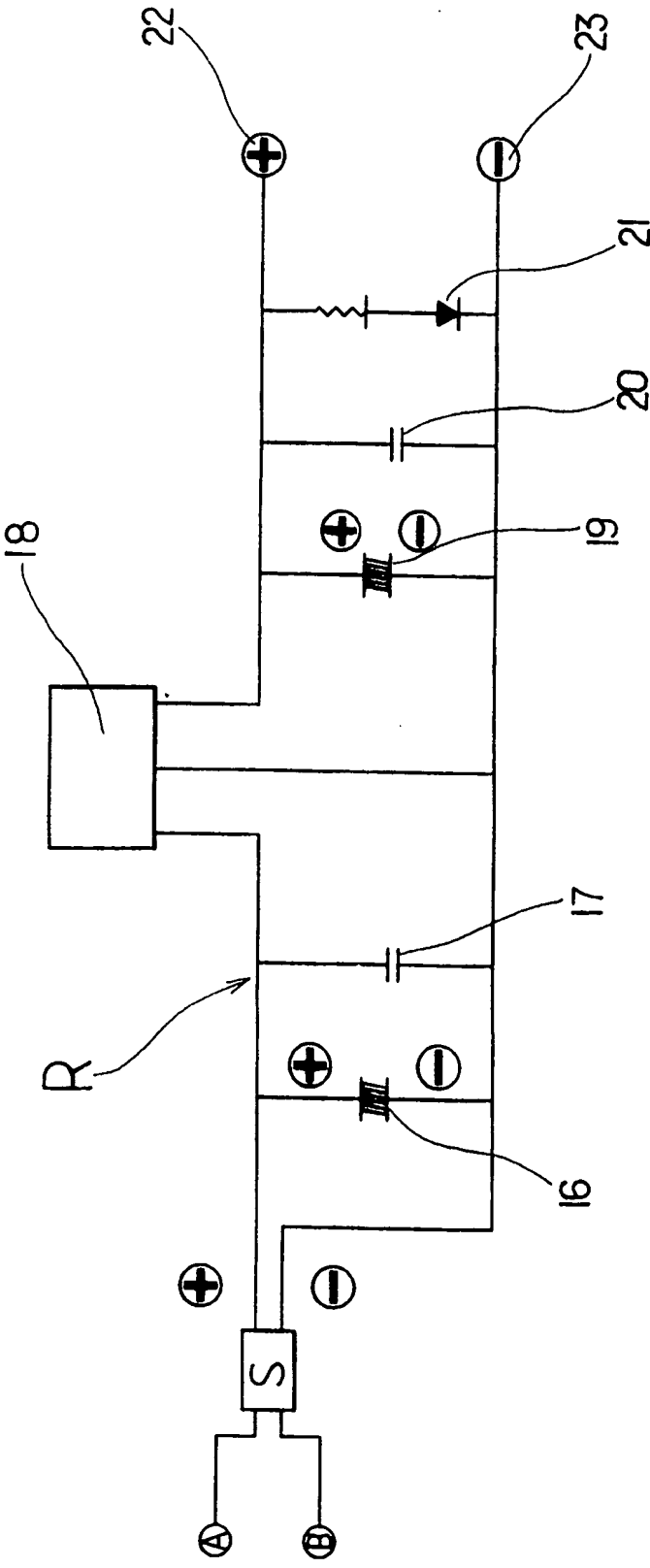


Fig 5





# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR 99/00703

## A. CLASSIFICATION OF SUBJECT MATTER

IPC<sup>7</sup>: H 02 K 21/24; H 02 J 7/14

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC<sup>7</sup>: H 02 K; H 02 J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC; PAJ, WPI

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 93/18571 A1 (DOWTY DEFENCE) 16 September 1993 (16.09.93), pages 1-11; fig. 1-4.	1
Y	EP 0595191 A1 (MAGNETI MARELLI) 04 May 1994 (04.05.94), column 1, lines 23-46; column 2, lines 16-24; fig. 1	1
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☐ Further documents are listed in the continuation of Box C.

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Date of the actual completion of the international search

27 April 2000 (27.04.00)

Date of mailing of the international search report

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Patent document cited in search report			Publication date	Patent family member(s)			Publication date
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